Enquire Teaching Timetable

Return

Course Outcome

STAT 2005 - Programming Languages for Statistics

Learning Outcome

Upon completion of the course, students should be able to
(1) understand the basic concepts in programming;
(2) write commands to create, retrieve and combine datasets;
(3) produce suitable statistical graphics and descriptive statistics;
(4) learn to apply computing software to assist data analysis;
(5) write functions and programs;
(6) perform simulations to solve statistical problems using programming; and
(7) prepare custom reports.

Course Syllabus

This course introduces the basic knowledge of using statistical software and programming. Students will learn programming with emphasis on data storage, data retrieval, data manipulation, data transformation, descriptive analysis, sorting, files merging, file updating, random sampling, and data reporting.
Topics include:
• Basic concepts for programming
• Lists and objects, vectors and matrices
• Database manipulation, creating and retrieving dataset
• Printing and sorting data
• Exploratory data analysis, descriptive statistics, and statistical graphics
• Programming with statistical software
• Solving nonlinear equation and function optimization
• Simulation and Monte Carlo methods
• Output formats and custom report

Assessment Type

	Assessment Type	Current Percent
1	Essay test or exam	30
2	Short answer test or exam	70

Feedback for Evaluation

Comments and feedback can be made via the following channel(s):
1. Term end course evaluation,
2. Student-staff consultative committee meeting(s).

Required Readings

None.

Recommended Readings

1. DiIorio, F. C. (1991). SAS Applications Programming: A Gentle Introduction, Duxbury Press
2. An introduction to R (from the Help manuals of the R package).
3. Spector, Phil. An introduction to S and S-plus, Duxbury Press.
4. Dalgaard, Peter Introductory Statistics with R, Springer.
5. 陳毅恆, 梁沛霖 R軟件操作入門, 中國統計出版社.